



Castrol Anvol PE 46 B

Fire resistant hydraulic oil

Description

Castrol Anvol PE 46 B is a high performance fire resistant hydraulic fluid which is primarily intended for use in steam turbine governor and boiler control systems. It is based on butylphenyl phosphate esters selected for their excellent hydrolytic stability and contains carefully selected corrosion and oxidation inhibitors. It has excellent hydraulic performance and provides good fire risk protection.

Application

Castrol Anvol PE 46 B is suitable for use in hydraulic systems where, in the event of leakage or pipe fracture, there is risk of fire and where water containing fluids are unsuitable due to temperature limitations or other reasons. It is specifically designed for use in the electro-hydraulic governor control systems of steam turbines, including systems using fine tolerance servo valves. Castrol Anvol PE 46 B was developed to eliminate service problems in high pressure systems resulting from spool valve erosion/corrosion - fluid leakage and loss of response - by possessing the properties known to minimize this effect, notably high resistivity, low chlorine content and a high level of fluid cleanliness. Physical properties such as foaming, air release and demulsibility are also carefully controlled within turbine manufacturers' specified limits.

Advantages

- Offers good fire risk protection in systems where fire resistance is vital and where water containing fluids are unsuitable due to temperature limitations or the need to maintain a high hydraulic system pressure.
- High flash point, fire point and auto-ignition temperature provides excellent fire resistance
- High resistivity eliminates spool valve corrosion/erosion due to electrokinetic effects.
- Low chlorine level minimizes valve erosion.
- High level of fluid cleanliness - minor amounts of particulate contamination can cause abrasive wear, filter blockage and valve sticking.

Typical Characteristics

Name	Method	Units	Anvol PE 46 B
Specific Gravity at 20°C	ISO 3675	-	1.15
Kinematic Viscosity	ISO 3104	cSt	
at 100°C			5.4
at 40°C			44.5
at 0°C			1676
Pour Point	ISO 3016	°C	-24
Foam Sequence III @ 24°C, Tendency	ISO 6247	ml	10
Foam Sequence III @ 24°C, Stability	ISO 6247	ml	0
Particle Counting	ISO 4406	-	Passes -/15/12
Water Separability, min	ISO 6614	minutes	5
Total Acid Number, mg KOH/g	ISO 6619	mg KOH/g	0.05
Air Release	ISO 9120	minutes	5.5
Water	ISO 760	% wt	0.1
Flash Point (Open Cup)	ASTM D92	°C	262
Fire Point (Open Cup)	ASTM D92	°C	354
Chlorine Content	IP510/04	ppm	<30
FZG (A8.3/90)	DIN 51354	FLS	7

The above figures are typical of those obtained with normal production tolerance and do not constitute a specification.

Compatibility

Castrol Anvol PE 46 B is compatible with all metals commonly found in electro-hydraulic control systems. Aluminium components should be hard anodized and the use of copper and copper alloy components kept to a minimum. In common with all phosphate ester fluids, special seals are required and the following materials are suitable:

- Fluoropolymers (Viton)
- Butyl Rubber
- PTFE
- Ethylene Propylene Rubber – under certain operating conditions.

Where paint materials are used, they should be epoxy resin based.

User Advice

Service precautions

Periodic measurement of the fluid neutralisation number should be made during service as this provides a good guide to any product degradation which may occur. The level and rate of change of neutralisation value will be dependant upon the installation, conditions of operation, and whether in-line filtration of the fluid is carried out.

Conversion precaution

It is essential that rigorous flushing should be carried out when converting systems from other fluids to phosphate esters. All scale should be removed, and filters, hoses, seals and internally painted surfaces should be checked for compatibility with the new fluid.

Care and Handling

Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.

Storage

All packages should be stored under cover. Where outside storage is unavoidable drums should be laid horizontally to avoid the possible ingress of water and the obliteration of drum markings. Products should not be stored above 60°C, exposed to hot sun or freezing conditions.

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